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Homogeneous conservative Wiener-Hopf equation. (English. Russian original) Zbl 1143.45001
[Sb. Math. 198, No. 9, 1341-1350 \(2007\)](#); translation from [Mat. Sb. 198, No. 9, 123-132 \(2007\)](#).

A function $S(x)$ satisfying the equation

$$S(x) = \int_0^{\infty} k(x-y)S(y) dy, \quad x > 0, \quad k(x) = k(-x) \geq 0, \quad \int_{-\infty}^{\infty} k(x) dx = 1,$$

is said to be its P^* -solution if it is nondecreasing, right-continuous, non-trivial and $S(x) = 0$ for $x < 0$.

Main result: The renewal function $u_+(x)$ is a P^* -solution of the homogeneous generalized Wiener-Hopf equation

$$S(x) = \int_{-\infty}^x S(x-y)F(dy), \quad x \geq 0,$$

where F is a distribution of the recurrent type, with the condition $u_+(0+) = 1$. Asymptotic properties of such solutions are also studied.

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MSC:

[45E10](#) Integral equations of the convolution type (Abel, Picard, Toeplitz and Wiener-Hopf type) Cited in 5 Documents

[60G50](#) Sums of independent random variables; random walks

Keywords:

[renewal function](#); [random walk](#); [symmetric probability distribution of recurrent type](#)

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